

**What are the Key Factors Influencing Successful Implementation of
Accounting Information Systems for Resource Planning?
A Case Study of Rubber Wood Companies in Thailand**

Sutira Limroscharoen

Lecturer, Faculty of Management Sciences,
Prince of Songkla University, Thailand

Apinya Duangphakdee

Student, Master of Accountancy, Faculty of Management Sciences,
Prince of Songkla University, Thailand

Muttanachai Suttipun, Ph.D.

Lecturer, Faculty of Management Sciences,
Prince of Songkla University, Thailand

Abstract

The study objectives were (1) to evaluate the success level of accounting information systems (AISs) for resource planning of rubber wood companies in Thailand, and (2) to investigate the influence of the key factors on successful implementation of AISs for resource planning of rubber wood companies in Thailand. The population included all companies in rubber wood industry in Thailand. By quota and simple random sampling, 110 out of 153 companies were employed as the samples. Descriptive analysis and multiple regression are used to analyze the data. The study found that the average success level of AISs for resource planning of rubber wood companies was at the high level. In terms of the key factors influencing successful implementation of AISs for resource planning of rubber wood companies, the results indicated that the AISs success was at the highest level for top management support; at the high level for quality of AISs, organization structure, and user characteristic; and at the moderate level for user participation. Moreover, the two factors, top management support and quality of AISs, had significant positive influence on successful implementation of AISs for resource planning of rubber wood companies in Thailand. The suggestions arising from this study can assist companies seeking to achieve successful implementation of their AISs for resource planning.

Keywords: key success factors, accounting information system, resource planning, rubber wood company

Introduction

The information technology, nowadays, has a very important role in all functions of the organizations, regardless of their sizes (large or small) or sectors (public or private), ranging from finance, human resource management, manufacturing, and most importantly, accounting. Accounting information systems (AISs) have been employed by organizations as information technology in order to improve the operating systems as well as enhance user

convenience and accessibility, save time, reduce bookkeeping errors, and increase operational efficiency. AISs are needed by each organization for a number of different purposes such as for efficient decision-making, data collecting, or problem solving; and, supported by AISs, the management can make the most beneficial use of a vast amount of information.

Resource planning system is the system for planning the organization's resources to maximize their benefits. The software is designed to connect each individual operational system within the organization and integrate into a single efficient system. Therefore, resource planning system is commonly employed by the organization for the purpose of managing its information, dealing with possible problems, and improving resource planning efficiency, which the system should be able to serve a wide range of business functions including accounting, finance, human resource management, manufacturing, purchasing and sales (Chaimee, 2008).

Since the early 1900s when Thailand was first introduced to rubber, Thailand has stepped up to become the number one natural rubber producer in the world (Thailand Board of Investment, 2017). The rubber products are exported to several countries around the world and generate a considerable amount of income for the country. As the rubber industry continues to grow, the companies in this industry have to prepare themselves to compete at the global level. One of the most important activities to help ensure the companies' readiness for the global competition is resource planning. By adopting suitable AISs for resource planning, it could result in a better planning and utilizing of the companies' resources at the maximum possible benefits. Nonetheless, the fit between AISs and the company is important, which the company should carefully consider the key factors that may have an influence on the AISs success, for instance, user characteristic, user participation, organization structure, top management support, and quality of AISs. While a direct study with the users of AISs themselves would allow the researchers to gain an insight on the how each factor affects the efficiency level of AISs within the company, the big picture and key success factors of AISs for resource planning could be better explored through the top-level management's view.

While the rubber wood companies concentrate on taking themselves global, they have to continuously manage both internal and external issues. Internally, the costs of running this business, ranging from raw materials, labor, and transportation, are rather high and they should be well-managed. Accordingly, the necessary information might not be completely or timely gathered for decision making, which could lead to unavoidable mistake. Even with AISs to be put in use and there is a shift from one to another system, the companies have to be able to overcome employee resistance to change. Externally, the companies must be able to keep up with the rapid economic and technological change. Thus, the study aimed to achieve the following objectives: (1) to evaluate the success level of AISs for resource planning of rubber wood companies in Thailand, and (2) to investigate the influence of the key factors on successful implementation of AISs for resource planning of rubber wood companies in Thailand.

The remainder of the research paper is organized by first presenting the theoretical framework employed in the study. The following sections present related discussions of AISs for resource planning, literature review and hypothesis development, research methodology, empirical results and discussion. The final section summarized the key conclusions drawn from the study together with recommendations for future research.

Theoretical Framework

The two important theories considered in this study of the key factors influencing successful implementation of AISs for resource planning including administrative decision-making theory to explain the success level of AISs for resource planning, and resource-based theory of the firm to explain the influence of the key factors on successful implementation of AISs for resource planning.

Administrative decision-making theory

Administrative decision-making is the principle which a wide range of activities within the organizations are connected among administrative parties. Fayol (1949) was a great contributor to the search for comprehensive principles of management. The concept of Fayol was built upon the studies of successful management towards the creation of universal principles of management that could be applied to any type of organization, whether it was industrial, government or other organizations, in order to coordinate and harmonize all activities across such organizations.

Previous studies in Thailand have supported administrative decision-making theory. Srihiran (2010) conducted a research on the factors affecting the efficiency of accounting information used by the executives of listed companies in the Stock Exchange of Thailand, and found that acceptance of resource planning systems were influenced by readiness to change, experience-related task, mutual understanding on resource planning, perceived ease-of-use, perceived benefit, and attitude towards such Enterprise Resource Planning (ERP). In Yodrach (2014), the relationship between AISs effectiveness and performance of listed companies in the Stock Exchange of Thailand were investigated. Both financial and non-financial performance of listed companies in the Stock Exchange of Thailand were stated to be affected by executive decision-making, automated information processing, system flexibility, and user satisfaction, in which the findings conformed to administrative decision-making theory.

By combining the efficiency and effectiveness dimensions, administrative decision-making theory was adopted in this study to explain the success level of AISs for resource planning of rubber wood companies in Thailand. Among available alternatives, the use of this theory will link to how management accumulate information and make use of AISs for resource planning before making the most beneficial decision for the organization.

Resource-based theory of the firm

Rather than examining the firm's strategic options from the product perspective, Wernerfelt (1984) proposed that the competitive advantage of the firms can be achieved from the resources under the firm's control. Barney (1991) further highlighted the link between firm resources and firm competitive advantage by emphasizing that difficult-to-imitate opportunities can be better created based on the use of internal resources than depended on external demand and technological change. Hence, under the resource-based theory of the firm, capabilities and resources within the companies are the main drivers towards sustained competitive advantage. Nevertheless, dynamic capabilities, which are the firm's capabilities to integrate, build and elevate both internal and external competencies in a rapidly changing business environment (Teece, Pisano, & Shuen, 1997), have played a central role in the process of gaining competitive advantage of the firm. Resource-based theory of the firm has been engaged in a number of prior relevant studies. For example, Khetpiyarat, Chemsripong, Sanghiran, and Na Krom (2013) studied the influence of a development of a causal model of the factors on organizational performance of exporting gems and jewelry industry in Thailand, and Burana and Limpsurapong (2014) investigated organizational development strategy and organizational survival using an evidence from the rubber cooperatives in Thailand.

This theory offers a crucial explanation to the second objective of this study that is to investigate the influence of the key factors on successful implementation of AISs for resource planning of rubber wood companies in Thailand. With resource-based theory of the firm, it can be used to clarify the AISs for resource planning success as well-processed information from firm's chosen AISs should be useful for managing the firm, planning resources as well as building competitive advantage and sustainable growth.

Accounting Information Systems for Resource Planning

AISs for resource planning are employed by a number of organizations as a key tool for overall resource planning. The use of AISs can help with developing an investment plan, connecting each department as well as solving problems arisen within the organizations. To sum up, AISs hugely assist in managing business and ensuring that resources are utilized to their maximum benefits.

For years, AISs for resource planning are used to manage business processes. The concept and approach of AISs for resource planning are developed to be the organization's operating systems, which all interrelated business functions and responsibilities including accounting, finance, human resource management, manufacturing, purchasing and sales are integrated within AISs for resource planning. A list of all resources required inside and outside the company's factory for each task, ranging from machinery to labor, equipment and materials are prepared in advance. This also covers carrying out other activities between factories, which further relate to purchasing and accounting systems, with an aim to best serve the customers' needs (Chaimee, 2008).

Normally, AISs for resource planning are developed as an instant software for the mass market, but not tailor-made for a specific organization. Therefore, it should be carefully considered whether that software is able to respond to users' expectation as well as flexible enough to meet each business' needs. Then, the measurement criteria of AISs for resource planning should include the four modules, which are accounting and finance, human resources, manufacturing, and sales.

The measurement of AISs for resource planning success, as suggested in DeLone and McLean (2003), Kamhawi (2007) and Srihiran (2010), should be focused whether the systems are easily accessible, provide up-to-date and reliable information, and satisfy the organization's needs. Therefore, in this study, to measure the success level of AISs for resource planning, there are three perspectives to be included: (1) "quality of work produced" which means correct, complete, prompt and suitable information can benefit and satisfy user's needs as well as meet organization's expectation, (2) "time" which means AISs can help simplify complex processes and lessen time used for planning, directing and controlling activities, and (3) "cost" which means AISs can lead to operating cost reduction and cost paid-benefit received balance.

Literature Review and Hypothesis Development

From the review of prior literature, there are five factors that are expected to influence successful implementation of AISs for resource planning including user characteristic, user participation, organization structure, top management support, and quality of AISs. Hence, this study tested these key factors and their influence on successful implementation of AISs for resource planning based on the five hypotheses developed as follows.

User characteristic

From the study of Rornsuek (2012), the use of AISs for resource planning and user satisfaction were found to be beneficial factors for the organizations. Particular characteristics, consisting of attitude, expectation and capabilities of information systems users, were crucial to the success of such information systems. In addition, Sirivanh and Chaikew (2012) stated that the growth of small and medium-sized enterprises in Lao People's Democratic Republic was positively influenced by the psychological characteristics of entrepreneurs. Hence, the level of benefits and operational success realized from data assessment in the information systems greatly depend on the users of such information technology due to differences in their personal values, attitudes, capabilities, eagerness to learn, and experiences. Therefore, it was hypothesized that:

H1: User characteristic has a positive influence on successful implementation of AISs for resource planning.

User participation

The study of Khunthong, Kumsuprom, and Srivoravilai (2014) found that the roles of participants in information systems development contributed to successful usage of ERP system with increased operational efficiency, reliability, well-planned and well-made decision, and positive organization image; moreover, knowledge and experience accumulated could assist the users' future career advancement. Promjak (2016) further found that the users generally had great interest in AISs and keen to give feedback or raise an issue about the system. Still, in order to increase the organizational performance and reach the maximum operational efficiency level, additional trainings for the participants are certainly and continuously required. Therefore, it was hypothesized that:

H2: User participation has a positive influence on successful implementation of AISs for resource planning.

Organization structure

The structure of an organization commonly consists of task allocation, responsibility assignment, communication channel, report, and control. It could be either centralized, where all decisions and processes are concentrated at the top level, or decentralized, where decision-making powers are delegated to the lower-level employees. The study of Wipassanophas (2012) found, for both internal and external business operations, a positive relationship between the ERP and the effectiveness of supply chain management. The perceived organizational support, as in Panmalee and Limsurapong (2014), was found to be positively related to the quality of working life. In Kammongkol's (2009) study, the organizational support, in terms of structure management as well as policy and strategy, was found to have a positive relationship and influence towards the efficiency of modified resource management systems as part of AISs for resource planning in the sense of accuracy, sparing, transparency and timeliness. It was further emphasized that the organizational support in terms of policy and strategy had a positive relationship and influence towards the overall work success as it helps reduce uncertainties and redundancies while provide a clear business direction. As organization structure plays an important role as a formal method of communication within an organization, it could complement the AISs success. Therefore, it was hypothesized that:

H3: Organization structure has a positive influence on successful implementation of AISs for resource planning.

Top management support

Promjak (2016) stated a view that if the top management of an organization possesses not only knowledge but also understanding of the usefulness of AISs for resource planning, such information systems will be able to help accomplish management tasks and ultimately achieve the organization's objective. Aside from that, found by both Kammongkol (2009) and Promjak (2016), the users themselves considered the support from top management, through ongoing learning, training and development within the organization, as the key to AISs and overall work success. Moreover, in the study of DeLone and McLean (2003), it was

found that information regarding the company's operational efficiency should be accessible by its management as it could assist management in answering strategic decision making to the shareholders. With AISs for resource planning put in use, necessary information could be transferred to a proper receiver at the right time. Consequently, the organization could create competitive advantage through reduced costs of service together with enhanced operational performance and transparency. Additionally, responsibility and understanding of both middle and top management were found by Srihiran (2010) and Xu, Nord, Brown, and Nord (2002) to be a positive influence on the efficiency and quality of the organization's AISs. Therefore, it was hypothesized that:

H4: Top management support has a positive influence on successful implementation of AISs for resource planning.

Quality of AISs

Regarding the adoption of new technology into an organization, the study of Muansrichai (2011) found that the new technology that is compatible with the old systems and related to the users' tasks and experiences would make it more user-friendly and lead to the acceptance of such technology. Besides, Khetpiyarat et al. (2013) stated that information technology systems had positive direct impact on organization learning. Information systems, then, have become the main focus in modern management. With better AISs employed, the organization would be able to obtain information that is timely, correct and efficient; and ultimately reach an optimal level operational performance. Therefore, it was hypothesized that:

H5: Quality of AISs has a positive influence on successful implementation of AISs for resource planning.

Research Methodology

The population in this study, totalling 153 companies, represented all companies in rubber wood industry in Thailand. The sample was derived using quota and simple random sampling based on the formula presented in Yamane (1973) and allowable error at 0.05 level; therefore, the sample size was 110 companies, representing 71.90 percent of the population.

The questionnaire in use was modified from the previous studies related to investigation of the factors that influence successful implementation of AISs for resource planning (Promjak, 2016; Srihiran, 2010), and was distributed to the chief accounting officers of the sample rubber wood companies in Thailand. The questions were divided into three parts: (1) general information of the respondent, (2) opinion towards the assessment of success level of the company's AISs for resource planning, and (3) opinion towards each key factor expected to influence successful implementation of AISs for resource planning. Each question in part (2) and (3) was measured using a five-point Likert scale ranging from 5 (Highest), 4 (High), 3 (Moderate), 2 (Low), and (1) Lowest. The interpretation of the

questionnaire used the average score from each level to find the range (maximum value - minimum value) and calculated the class interval (Chanprasert, 2010; Promjak, 2016) by dividing the range by the number of classes, which was equal to 0.80. Then, the range was ordered according to the interval of respondents' opinions as shown below:

Average score of 1.00 – 1.80 refers to the factor with the lowest success level

Average score of 1.81 – 2.60 refers to the factor with the low success level

Average score of 2.61 – 3.40 refers to the factor with the moderate success level

Average score of 3.41 – 4.20 refers to the factor with the high success level

Average score of 4.21 – 5.00 refers to the factor with the highest success level

Cronbach's alpha coefficient was used to perform the reliability analysis of the questionnaire in which the value of over 0.60 should signify that the variables are reliable (Cronbach, 1951). This questionnaire had Cronbach's alpha of 0.839; therefore, its reliability was in a very good level.

To analyze the data in this study, descriptive analysis using frequency, mean, and standard deviation, was used to evaluate the success level and each key factor expected to influence successful implementation of AISs for resource planning. Multiple regression analysis was employed to investigate the influence of the key factors on successful implementation of AISs for resource planning, while correlation analysis was used to help determine variable dependency. The regression equation can be shown as follows:

$$SL = \beta_0 + \beta_1 UC + \beta_2 UP + \beta_3 OS + \beta_4 TM + \beta_5 QI + \varepsilon$$

Where

SL = Success level of AISs for resource planning

UC = User characteristic

UP = User participation

OS = Organization structure

TM = Top management support

QI = Quality of AISs

ε = Error

Empirical Results and Discussions

From 110 questionnaires, there were 103 female respondents (93.6 percent) and seven male respondents (6.4 percent). The educational profile of 94 respondents (85.4 percent) were bachelor's degree, nine respondents (8.2 percent) were below bachelor's degree, and seven respondents (6.4 percent) were master's degree. In terms of the job position, 81 respondents (73.6 percent) held a position as accounting staff, 20 respondents (18.2 percent) as accounting manager, seven respondents (6.4 percent) as director, and two respondents (1.8 percent) as

other. There were 43 respondents (39.1 percent) with more than ten years of working experience, 39 respondents (35.5 percent) with one to five years of working experience, 25 respondents (22.7 percent) with five to ten years of working experience, and three respondents (2.7 percent) with less than one year of working experience. The AIS-related experience were the most common at the experience of one to five years totalling 66 respondents (60.0 percent), the experience of five to ten years totalling 21 respondents (19.1 percent), the experience of more than ten years totalling 16 respondents (14.5 percent), and the experience of below one year totalling seven respondents (6.4 percent).

Table 1

Measurement of Success Level of AISs for Resource Planning

Measurement of Success Level	Mean	Standard Deviation	Success Level
Quality of work produced	4.04	0.72	High
Time	4.17	0.63	High
Cost	4.02	0.65	High
Overall success level of AISs	4.08	0.69	High

Table 1 showed the mean and standard deviation of opinion towards the assessment of success level of AISs for resource planning of rubber wood companies in Thailand obtained from the questionnaires. It was displayed that the overall mean and standard deviation of the success level of the companies' AISs for resource planning were 4.08 and 0.69, respectively, which made overall AISs success to be at the high level. Among the three perspectives measured, the most prominent was in terms of time, with mean of 4.17 and standard deviation of 0.63. It was followed by the measurement in terms of quality of work produced, with mean of 4.04 and standard deviation of 0.72; and in terms of cost, with mean of 4.02 and standard deviation of 0.65. It was worth noted that the success level of above three perspectives was all at the high level.

Table 2

Key Factors Expected to Influence Success Level of AISs for Resource Planning

Key Success Factors	Mean	Standard Deviation	Success Level
User characteristic	3.72	0.56	High
User participation	3.29	0.84	Moderate
Organization structure	3.95	0.54	High
Top management support	4.25	0.60	Highest
Quality of AISs	4.10	0.45	High

Table 2 indicated the mean and standard deviation of opinion towards selected key factors, including user characteristic, user participation, organization structure, top management support and quality of AISs, expected to influence successful implementation of AISs for resource planning of rubber wood companies in Thailand. The results gathered from the respondents suggested that the success level was expected to be at the highest level as influenced by top management support with mean of 4.25 and standard deviation of 0.60. There were three factors which the success level was expected to be at the high level. In descending order, quality of AISs had mean of and 4.10 standard deviation of 0.45; organization structure had mean of and 3.95 standard deviation of 0.54, and user characteristic had mean of and 3.72 standard deviation of 0.56. The moderate success level was expected from user participation with mean of 3.29 and standard deviation of 0.84.

Table 3
Correlation Matrix and Variance Inflation Factor

Variables	SL	UC	UP	OS	TM	QI	VIF
SL	1.0000	0.621**	.0575**	0.471**	0.490**	0.520**	
UC		1.000	0.494**	0.187*	0.234*	0.278**	2.284
UP			1.000	0.526**	0.411**	0.469**	1.819
OS				1.000	0.634**	0.730**	1.862
TM					1.000	0.708**	2.046
QI						1.000	1.817

** significant at $p < 0.01$, and * significant at $p < 0.05$

In Table 3, the correlation matrix was shown between five independent variables used in this study including user characteristic, user participation, organization structure, top management support, and quality of AISs, along with one dependent variable that is the success level of AISs for resource planning. The multicollinearity test was conducted using the variance inflation factor (VIF), which a VIF of above 10 generally indicates a multicollinearity problem. With the VIF ranging between 1.817 and 2.284, there should be no multicollinearity among the variables of this study because the VIF level is below 10.

Table 4
Multiple Regression Analysis

Variables	β	t	Sig.
Constant	0.287	2.418	0.048*
User characteristic	0.078	1.193	0.236
User participation	0.046	0.530	0.597
Organization structure	0.073	0.108	0.914
Top management support	0.090	5.266	0.000**

Quality of AISs	0.086	4.705	0.000**
$R^2 = 0.648$, Adjusted $R^2 = 0.631$, F-value = 12.606 (0.000**)			
** significant at $p < 0.01$, and * significant at $p < 0.05$			

Table 4 presented the results of multiple regression analysis conducted to investigate the influence of the key factors on successful implementation of AISs for resource planning of rubber wood companies in Thailand. Two factors consisting of top management support and quality of AISs were found to have a positive influence on successful implementation of AISs for resource planning of rubber wood companies in Thailand at the 0.01 significant level; therefore, hypothesis H4 and H5 were accepted. However, user characteristic, user participation and organization structure were not found to have any influence on successful implementation of AISs for resource planning of rubber wood companies in Thailand at the 0.05 significant level; hence, hypothesis H1, H2 and H3 were not accepted.

For the top management support that was found to be positively influencing successful implementation of AISs for resource planning, this is because the management's abilities are closely linked to how AISs would be handled in each company. If the top management possesses a knowledge and understanding of AISs for resource planning, they would be able to not only set up corporate policies and assign proper resources, but also encourage the employees to be mindful of AISs for resource planning. The finding is consistent with that of Kammongkol (2009), Promjak (2016), Srihiran (2010) and Xu et al. (2002), who found that the support from the organization's management had a positive influence on not only the efficiency and quality of the organization's AISs but also the work success on the whole.

In terms of quality of AISs, as previously noted, the results showed that the variable had a positive influence on successful implementation of AISs for resource planning within the company. The superiority in quality of AISs could be attained when AISs for resource planning are thoughtfully and cautiously developed in order to facilitate information accessibility to be easy, timely, reliable, complete, and correct. The study's result is in line with the studies of Khetpiyarat et al. (2013), who emphasized that the organization would be able to obtain higher quality of information with higher quality AISs put in place. Consequently, by being able to systematically connect all business processes, AISs would be able to contribute to a maximum possible performance with better quality of work produced, lessened processing time, and lower cost of operations.

Conclusions and Recommendations

This study aimed to (1) to evaluate the success level of AISs for resource planning of rubber wood companies in Thailand, and (2) to investigate the key factors influencing successful implementation of AISs for resource planning of rubber wood companies in Thailand. The population was all companies in rubber wood industry in Thailand. By quota and simple random samplings, 110 out of 153 companies were used as the samples.

Descriptive analysis and multiple regression were used to analyze the data. This study found that the average success level of AISs for resource planning of rubber wood companies was at the high level. The key factors expected to influence successful implementation of AISs for resource planning of rubber wood companies was at the highest success level in terms of top management support, at the high success level in terms of quality of AISs, organization structure, and user characteristic, and at the moderate success level in terms of user participation. In addition, from all five key factors identified in this study, two factors with statistically significant positive influence on successful implementation of AISs for resource planning of rubber wood companies in Thailand were top management support and quality of AISs.

This study provided several contribution. First, the findings indicated the key factors influencing successful implementation of AISs for resource planning, especially top management support and quality of AISs. Second, the results of this study might be able to apply in order to develop or improve the success level of AISs for resource planning of other industries, aside from rubber wood industry. Third, the findings clearly demonstrated that the key factors influencing successful implementation of AISs for resource planning could be explained by the theory used in this study, particularly resource-based theory of the firm. Finally, this study could be a database for students, scholars, and researchers who would like to further explore key success factors of AISs in the future.

However, there were a couple limitations in the study. Firstly, the questionnaire provided only close-end questions; therefore, it could not be asked for the supporting explanation or reason of successful implementation of AISs for resource planning. Next, there were merely five factors included in this study, but the other factors used in previous studies were not considered. Thereby, for the future study, the explanation and reason in relation to the AISs for resource planning should be considered by either depth interview or open-end questionnaire; in addition, the other factors that may influence successful implementation of AISs for resource planning should be added.

References

- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Burana, P. & Limpsurapong, C. (2014). *Organizational development strategy and organizational survival: evidence from Para Rubber Cooperatives in Thailand*. Master Thesis, Faculty of Liberal Arts and Management Science, Kasetsart University, Chalermphrakiat Sakon Nakhon Province Campus, Thailand.
- Chaimee, W. (2008). *Principle of ERP management for manufacturing*. Nonthaburi: TPIM.
- Chanprasert, S. (2010). *The study of ERP technology acceptance case study Ubonratana Dam Electricity Generating Authority of Thailand*. Independent Study, College of Innovation, Thammasat University, Bangkok, Thailand.

- Cronbach, L.J. (1951). Coefficient alpha and internal structure of tests. *Psychometrika*, 16(3), 297-334.
- DeLone, W.H. & McLean, E.R. (2003). The DeLone and McLean model of information system success: a ten-year update. *Journal of Management Information Systems*, 19(4), 9-30.
- Fayol, H. (1949). *General and industrial management*. NY: Pitman.
- Kamhawi, E.M. (2007). Critical factors for implementation success of ERP systems: an empirical investigation from Bahrain. *International Journal of Enterprise Information Systems*, 3(2), 34-49.
- Kammongkol, W. (2009). *The effect of organizational support and the efficiency of modified resource management using ERP in Rajamangala University of Technology Isan*. Master Thesis, Mahasarakham Business School, Mahasarakham University, Mahasarakham, Thailand.
- Khetpiyarat, P., Chemsripong, S., Sanghiran, M. & Na Krom, W. (2013). A development of a causal model of the factors influencing organizational performance of exporting gems and jewelry industry in Thailand. *Journal of Business, Economics and Communications*, 8(2), 99-113.
- Khunthong, U., Kumsuprom, S. & Srivoravilai, N. (2014). The success factors of using the Enterprise Resource Planning System in accounting and finance affecting the change of the accountants and finance officers' roles and leading to the efficient operation of the business enterprises in Thailand. *Suthiparithat*, 28(86), 295-321.
- Muansrichai, S. (2011). *Factors affecting the acceptance of the ERP software from the perspective of accounting users*. Master Thesis, Faculty of Commerce and Accountancy, Thammasat University, Bangkok, Thailand.
- Panmalee, R. & Limpsurapong, C. (2014). Perceived organizational support and organizational culture affect to firms performance: evidence from day spa business's employees in Thailand. *Journal of Liberal Arts and Management Science*, 1(1), 1-11.
- Promjak, N. (2016). *Factors affecting efficiency of using accounting information systems for enterprise resource planning of companies in Northern Region Industrial Estate, Lamphun Province*. Independent Study, Faculty of Business Administration, Chiang Mai University, Chiang Mai, Thailand.
- Rornsuek, W. (2012). *Study on factors towards for success in the enterprise resource planning by the DeLone and McLean model of information systems success (2003): a case study of metal company in metal industry*. Independent Study, College of Innovation, Thammasat University, Bangkok, Thailand.
- Sirivanh, T. & Chaikew, A. (2012). Factors Affecting toward Growth of Small and Medium Enterprises in Lao People's Democratic Republic. *Journal of Interdisciplinary Research: Graduate Studies*, 1(2), 27-35.

- Srihiran, W. (2010). *Factors affecting the efficiency of accounting information using of the executive under the companies listed on the Stock Exchange of Thailand*. Master Thesis, Faculty of Business Administration, Rajamangala University of Technology Phra Nakhon, Bangkok, Thailand.
- Teece, D.J., Pisano, G. & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- Thailand Board of Investment. (2017). *Thailand's rubber industry*. Retrieved August 2, 2017, from http://www.boi.go.th/upload/content/BOI-brochure_2017-rubber-20170223_15111.pdf.
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171-180.
- Wipassanophas, R. (2012). *The relationship between attitudes that is the benefits of the Enterprise Resource Planning (ERP) with an effective attitudes of the supply chain management of the auto parts manufacturing companies in Amata Nakorn Industrial Estate*. Independent Study, College of Innovation, Thammasat University, Bangkok, Thailand.
- Xu, H., Nord, J.H., Brown, N. & Nord, G.D. (2002). Data quality issues in implementing an ERP. *Industrial Management & Data systems*, 102(1), 47-58.
- Yamane, T. (1973). *Statistics: an introduction analysis* (3rd). NY: Harper and Row.
- Yodrach, W. (2014). Effectiveness of an accounting information system affecting the performance of listed companies in the Stock Exchange of Thailand. *Research Methodology & Cognitive Science*, 12(2), 58-69.